



**National Aeronautics
and Space Administration**

**June 13, 1997
NRA 97-OSS-12**

RESEARCH ANNOUNCEMENT

Astrophysics Theory Program (ATP)

Notice of Intent Due Date:
Proposal Due Date:

**July 25, 1997
September 15, 1997**

OMB Approval No. 2700-0087

Astrophysics Theory Program (ATP)

NASA Research Announcement
Soliciting Proposals for
Basic Research
for the Period Ending
September 15, 1997

NRA 97-OSS-12
Issued: June 13, 1997

Research Program Management Division
Office of Space Science
National Aeronautics and Space Administration
Washington, DC 20546-0001

ASTROPHYSICS THEORY PROGRAM

This NASA Research Announcement (NRA) solicits proposals for theoretical research with relevance to the interpretation of data from space astrophysics observations. This program seeks to address problems in space astrophysics including the subdisciplines of infrared and radio astrophysics, ultraviolet and visible astrophysics, high energy astrophysics, relativity and gravitational astrophysics, and — new this year — galactic cosmic ray/particle astrophysics. This program consists of research projects with a duration of up to 3 years. Participation in this program is open to all categories of organizations, foreign and domestic, including educational institutions, profit and nonprofit organizations, NASA Centers, and other Government agencies. Notices of Intent are strongly encouraged by July 25, 1997, in order to expedite the review and selection process. Proposals may be submitted at any time during the period ending September 15, 1997. See Appendix C for details on how to submit proposals. The proposal deadline will be adhered to strictly, and proposals received after September 15, 1997, will be held for the next review cycle that will commence in 1998. Proposals will be evaluated by scientific peer review panels, and selections will be announced within four months after the due date.

Funds for awards under this NRA are expected to be available subject to the annual NASA budget cycle. The Government's obligation to make awards is contingent upon the availability of appropriated funds from which payment for award purposes can be made and the receipt of proposals that the Government determines are acceptable for award under this NRA.

This Announcement is available electronically through the Office of Space Science (OSS) homepage at Internet host <<http://www.hq.nasa.gov/office/oss/>> by opening "Research Opportunities" from the menu, while all OSS science and education strategies may be found by opening "Publications."

Identifier:	NRA 97-OSS-12
Submit Notice of Intent by E-mail to:	debra.tripp@hq.nasa.gov
Notice of Intent due date:	July 25, 1997

Submit Proposals to: Astrophysics Theory Program
Jorge Scientific Corporation
400 Virginia Ave., SW
Suite 700
Washington D.C. 20024
Tel: 202-554-2775
Fax: 202-554-3042

Proposal due date: September 15, 1997

Number required: 15 copies of full proposal
plus signed original Cover Sheet
(refer to this NRA)

Selecting Official: Director
Research Program Management
Division
Office of Space Science
NASA Headquarters

WebSubmission URL for Cover Page: http://www.Code_S_Proposals.hq.nasa.gov/atp97
<http://131.182.116.166/atp97>

Obtain Additional Information From: Dr. Howard Smith
Code SR
Office of Space Science
NASA Headquarters
Washington, DC 20546-0001 U.S.A.
Telephone: 202-358-1588
E-mail: theory@hq.nasa.gov

Your interest and cooperation in participating in this effort are appreciated.

Alan N. Bunner
Science Program Director
Structure and Evolution of the Universe
Office of Space Science

Edward J. Weiler
Science Program Director
Astronomical Search for Origins
and Planetary Systems
Office of Space Science

List of Appendices and Enclosures

Hardcopies are available only on request from proposers who do not have access to Internet (contact Jorge Scientific Corporation at 202-554-2775; E-mail: karen.davis@hq.nasa.gov).

Appendix A Program Description

Appendix B Guidelines for Responding to NASA Research Announcements for Solicited Basic Research Proposals

Appendix C Additional Guidelines for the Preparation of Proposals in Response to this NRA

Appendix D Forms for Use in Preparing Proposals in Response to this NRA

- Sample Cover Page
- Proposal Budget Form and instructions
- Certification Forms (Drug-Free Workplace, Debarment and Suspension, and Lobbying)

Program Description

Astrophysics Theory Program (ATP)

The NASA Astrophysics Theory Program is intended to support efforts to develop basic theory needed for NASA's space astrophysics programs.

Proposals submitted for the Astrophysics Theory Program should:

- be directly relevant to space astrophysics: the proposed studies should facilitate the interpretation of existing data from space astrophysics missions, foreign as well as domestic, or should lead to predictions which can be tested with space astrophysics observations,
- address theoretical problems in space astrophysics that are either broadly applicable across astrophysics or narrowly focused on a particular subdiscipline of space astrophysics (e.g., infrared and radio astrophysics, ultraviolet and visible astrophysics, high energy astrophysics, relativity and gravitational astrophysics, and — new this year — galactic cosmic ray/particle astrophysics), and consist predominantly of theoretical studies and the development of theoretical models that may also incidentally include data analysis and comparison tests of theory against data from space astrophysics missions.

Proposals to the Astrophysics Theory Program may **not**

- consist primarily of data reduction or data analysis (such proposals should be directed to the mission-specific programs, the Astrophysics Data Program, or the Long-Term Space Astrophysics Research Program),
- address theoretical topics that are predominantly unrelated to space astrophysics needs (such proposals should be directed to the appropriate Federal agencies),
- deal strictly or predominantly with solar system objects or solar-terrestrial interaction studies, including solar energetic particles,
- request support for organizing and hosting scientific meetings, or
- request support for substantial computing facilities or resources.

Participation in the Astrophysics Theory Program

Participation in this program is open to all categories of organizations, foreign and domestic, including educational institutions, profit and nonprofit organizations, NASA Centers, and other Government agencies. Abstracts of

currently funded Astrophysics Theory projects can be found at <ftp.hq.nasa.gov> under the directory </pub/astrophysics/Grant_Abstracts>.

Two types of proposals will be considered: Proposals from Principal Investigators who head research **groups** and proposals from **individual** researchers. All proposals must be endorsed by the proposer's sponsoring institution. For proposals from research groups, the scientific need for and logic of the team effort must be clearly justified. A set of unrelated or only loosely related research topics by several investigators does not constitute a valid group effort.

Funding for the Astrophysics Theory Program

The program duration may be up to a maximum of a contiguous 3-year period, beginning in January 1998. Multiyear funding must be justified. The combined funding level for all new awards resulting from this NRA is expected to be approximately \$2.3M per year for the next 3 years. The typical level of support per year is expected to be in the range of \$50K to \$100K for individuals and up to \$300K for research groups.

Although NASA intends to select projects with durations up to 3 years, there is no obligation on the part of the U.S. Government to renew any or all of the selected projects. The Government's obligation to make awards is contingent upon the availability of appropriated funds and the receipt of proposals that the Government determines are acceptable for award under this NRA.

INSTRUCTIONS FOR RESPONDING TO NASA RESEARCH ANNOUNCEMENTS

Part 1852.235-72

NASA Federal Acquisition Regulations (FAR) Supplement (NFS)
Version 89.90, Effective March 11, 1997.

Accessible at URL

<<http://www.hq.nasa.gov/office/procurement/regs/nfstoc.htm>>,
open Part 1852.228 to 1852.241 from menu.

(JANUARY 1997)

A. General.

(1) Proposals received in response to a NASA Research Announcement (NRA) will be used only for evaluation purposes. NASA does not allow a proposal, the contents of which are not available without restriction from another source, or any unique ideas submitted in response to an NRA to be used as the basis of a solicitation or in negotiation with other organizations, nor is a preaward synopsis published for individual proposals.

(2) A solicited proposal that results in a NASA award becomes part of the record of that transaction and may be available to the public on specific request; however, information or material that NASA and the awardee mutually agree to be of a privileged nature will be held in confidence to the extent permitted by law, including the Freedom of Information Act.

(3) NRA's contain programmatic information and certain requirements which apply only to proposals prepared in response to that particular announcement. These instructions contain the general proposal preparation information which applies to responses to all NRA's.

(4) A contract, grant, cooperative agreement, or other agreement may be used to accomplish an effort funded in response to an NRA. NASA will determine the appropriate instrument. Contracts resulting from NRA's are subject to the Federal Acquisition Regulation (FAR) and the NASA FAR Supplement (NFS). Any resultant grants or cooperative agreements will be awarded and administered in accordance with the NASA Grant and Cooperative Agreement Handbook (NPG 5800.1).

(5) NASA does not have mandatory forms or formats for responses to NRA's; however, it is requested that proposals conform to the guidelines in these instructions. NASA may accept proposals without discussion; hence, proposals should initially be as complete as possible and be submitted on the proposers' most favorable terms.

(6) To be considered for award, a submission must, at a minimum, present a specific project within the areas delineated by the NRA; contain sufficient technical and cost information to permit a meaningful evaluation; be signed by an official authorized to legally bind the submitting organization; not merely offer to perform standard services or to just provide computer facilities or services; and not significantly duplicate a more specific current or pending NASA solicitation.

B. NRA-Specific Items. Several proposal submission items appear in the NRA itself: the unique NRA identifier, when to submit proposals, where to send proposals, number of copies required, and sources for more information. Items included in these instructions may be supplemented by the NRA.

C. Proposal Content. The following information is needed to permit consideration in an objective manner. NRA's will generally specify topics for which additional information or greater detail is desirable. Each proposal copy shall contain all submitted material, including a copy of the transmittal letter if it contains substantive information.

(1) *Transmittal Letter or Prefatory Material*.

- (i) The legal name and address of the organization and specific division or campus identification, if part of a larger organization;
- (ii) A brief, scientifically valid project title intelligible to a scientifically literate reader and suitable for use in the public press;
- (iii) Type of organization: e.g., profit, nonprofit, educational, small business, minority, women-owned, etc.;
- (iv) Name and telephone number of the principal investigator and business personnel who may be contacted during evaluation or negotiation;
- (v) Identification of other organizations that are currently evaluating a proposal for the same efforts;
- (vi) Identification of the NRA, by number and title, to which the proposal is responding;
- (vii) Dollar amount requested, desired starting date, and duration of project;
- (viii) Date of submission; and
- (ix) Signature of a responsible official or authorized representative of the organization, or any other person authorized to legally bind the organization(unless the signature appears on the proposal itself).

(2) *Restriction on Use and Disclosure of Proposal Information.* Information contained in proposals is used for evaluation purposes only. Offerors or quoters should, in order to maximize protection of trade secrets or other information that is confidential or privileged, place the following Notice on the title page of the proposal and specify the information subject to the notice by inserting an appropriate identification in the Notice. In any event, information contained in proposals will be protected to the extent permitted by law, but NASA assumes no liability for use and disclosure of information not made subject to the Notice.

Notice

Restriction on Use and Disclosure of Proposal Information

The information (data) contained in [insert page numbers or other identification] of this proposal constitutes a trade secret and/or information that is commercial or financial and confidential or privileged. It is furnished to the Government in confidence with the understanding that it will not, without permission of the offeror, be used or disclosed other than for evaluation purposes; provided, however, that in the event a contract(or other agreement) is awarded on the basis of this proposal, the Government shall have the right to use and disclose this information (data) to the extent provided in the contract(or other agreement). This restriction does not limit the Government's right to use or disclose this information (data) if obtained from another source without restriction.

(3) *Abstract.* Include a concise (200-300 word if not otherwise specified in the NRA) abstract describing the objective and the method of approach.

(4) *Project Description.*

(i) The main body of the proposal shall be a detailed statement of the work to be undertaken and should include objectives and expected significance, relation to the present state of knowledge, and relation to previous work done on the project and to related work in progress elsewhere. The statement should outline the plan of work, including the broad design of experiments to be undertaken and a description of experimental methods and procedures. The project description should address the evaluation factors in these instructions and any specific factors in the NRA. Any substantial collaboration with individuals not referred to in the budget or use of consultants should be described. Subcontracting significant portions of a research project is discouraged.

(ii) When it is expected that the effort will require more than one year, the proposal should cover the complete project to the extent that it can be reasonably anticipated. Principal emphasis should be on the first year of work, and the description should distinguish clearly between the first year's work and work planned for subsequent years.

(5) *Management Approach.* For large or complex efforts involving interactions among numerous individuals or other organizations, plans for distribution of responsibilities and arrangements for ensuring a coordinated effort should be described.

(6) *Personnel.* The principal investigator is responsible for supervision of the work and participates in the conduct of the research regardless of whether or not compensated under the award. A short biographical sketch of the principal investigator, a list of principal publications, and any exceptional qualifications should be included. Omit social security number and other personal items which do not merit consideration in evaluation of the proposal. Give similar biographical information on other senior professional personnel who will be directly associated with the project. Give the names and titles of any other scientists and technical personnel associated substantially with the project in an advisory capacity. Universities should list the approximate number of students or other assistants, together with information as to their level of academic attainment. Any special industry-university cooperative arrangements should be described.

(7) *Facilities and Equipment.*

(i) Describe available facilities and major items of equipment especially adapted or suited to the proposed project, and any additional major equipment that will be required. Identify any Government-owned facilities, industrial plant equipment, or special tooling that are proposed for use. Include evidence of its availability and the cognizant Government points of contact.

(ii) Before requesting a major item of capital equipment, the proposer should determine if sharing or loan of equipment already within the organization is a feasible alternative. Where such arrangements cannot be made, the proposal should so state. The need for items that typically can be used for research and non research purposes should be explained.

(8) *Proposed Costs.*

(i) Proposals should contain cost and technical parts in one volume: do not use separate "confidential" salary pages. As applicable, include separate cost estimates for salaries and wages, fringe benefits, equipment, expendable materials and supplies, services, domestic and

foreign travel, ADP expenses, publication or page charges, consultants, subcontracts, other miscellaneous identifiable direct costs, and indirect costs. List salaries and wages in appropriate organizational categories (e.g., principal investigator, other scientific and engineering professionals, graduate students, research assistants, and technicians and other non-professional personnel). Estimate all staffing data in terms of staff-months or fractions of full-time.

(ii) Explanatory notes should accompany the cost proposal to provide identification and estimated cost of major capital equipment items to be acquired, purpose and estimated number and lengths of trips planned, basis for indirect cost computation (including date of most recent negotiation and cognizant agency), and clarification of other items in the cost proposal that are not self-evident. List estimated expenses as yearly requirements by major work phases.

(iii) Allowable costs are governed by FAR Part 31 and the NASA FAR Supplement Part 1831 (and OMB Circulars A-21 for educational institutions and A-122 for nonprofit organizations).

(9) *Security.* Proposals should not contain security classified material. If the research requires access to or may generate security classified information, the submitter will be required to comply with Government security regulations.

(10) *Current Support.* For other current projects being conducted by the principal investigator, provide title of project, sponsoring agency, and ending date.

(11) *Special Matters.*

(i) Include any required statements of environmental impact of the research, human subject or animal care provisions, conflict of interest, or on such other topics as may be required by the nature of the effort and current statutes, executive orders, or other current Government-wide guidelines.

(ii) Proposers should include a brief description of the organization, its facilities, and previous work experience in the field of the proposal. Identify the cognizant Government audit agency, inspection agency, and administrative contracting officer, when applicable.

D. Renewal Proposals

(1) Renewal proposals for existing awards will be considered in the same manner as proposals for new endeavors. A renewal proposal should not repeat all of the information that was in the original proposal. The renewal proposal should refer to its predecessor, update the parts that are no longer current, and indicate what elements of the research are expected to be

covered during the period for which support is desired. A description of any significant findings since the most recent progress report should be included. The renewal proposal should treat, in reasonable detail, the plans for the next period, contain a cost estimate, and otherwise adhere to these instructions.

(2) NASA may renew an effort either through amendment of an existing contract or by a new award.

E. Length. Unless otherwise specified in the NRA, effort should be made to keep proposals as brief as possible, concentrating on substantive material. Few proposals need exceed 15-20 pages. Necessary detailed information, such as reprints, should be included as attachments. A complete set of attachments is necessary for each copy of the proposal. As proposals are not returned, avoid use of "one-of-a-kind" attachments.

F. Joint Proposals.

(1) Where multiple organizations are involved, the proposal may be submitted by only one of them. It should clearly describe the role to be played by the other organizations and indicate the legal and managerial arrangements contemplated. In other instances, simultaneous submission of related proposals from each organization might be appropriate, in which case parallel awards would be made.

(2) Where a project of a cooperative nature with NASA is contemplated, describe the contributions expected from any participating NASA investigator and agency facilities or equipment which may be required. The proposal must be confined only to that which the proposing organization can commit itself. "Joint" proposals which specify the internal arrangements NASA will actually make are not acceptable as a means of establishing an agency commitment.

G. Late Proposals. A proposal or modification received after the date or dates specified in an NRA may be considered if doing so is in the best interests of the Government.

H. Withdrawal. Proposals may be withdrawn by the proposer at any time before award. Offerors are requested to notify NASA if the proposal is funded by another organization or of other changed circumstances which dictate termination of evaluation.

I. Evaluation Factors

(1) Unless otherwise specified in the NRA, the principal elements (of approximately equal weight) considered in evaluating a proposal are its relevance to NASA's objectives, intrinsic merit, and cost.

(2) Evaluation of a proposal's relevance to NASA's objectives includes the consideration of the potential contribution of the effort to NASA's mission.

(3) Evaluation of its intrinsic merit includes the consideration of the following factors of equal importance:

(i) Overall scientific or technical merit of the proposal or unique and innovative methods, approaches, or concepts demonstrated by the proposal.

(ii) Offeror's capabilities, related experience, facilities, techniques, or unique combinations of these which are integral factors for achieving the proposal objectives.

(iii) The qualifications, capabilities, and experience of the proposed principal investigator, team leader, or key personnel critical in achieving the proposal objectives.

(iv) Overall standing among similar proposals and/or evaluation against the state-of-the-art.

(4) Evaluation of the cost of a proposed effort may include the realism and reasonableness of the proposed cost and available funds.

J. Evaluation Techniques. Selection decisions will be made following peer and/or scientific review of the proposals. Several evaluation techniques are regularly used within NASA. In all cases, proposals are subject to scientific review by discipline specialists in the area of the proposal. Some proposals are reviewed entirely in-house, others are evaluated by a combination of in-house and selected external reviewers, while yet others are subject to the full external peer review technique (with due regard for conflict-of-interest and protection of proposal information), such as by mail or through assembled panels. The final decisions are made by a NASA selecting official. A proposal which is scientifically and programmatically meritorious, but not selected for award during its initial review, may be included in subsequent reviews unless the proposer requests otherwise.

K. Selection for Award.

(1) When a proposal is not selected for award, the proposer will be notified. NASA will explain generally why the proposal was not selected. Proposers desiring additional information may contact the selecting official who will arrange a debriefing.

(2) When a proposal is selected for award, negotiation and award will be handled by the procurement office in the funding installation. The proposal is used as the basis for negotiation. The contracting officer may request certain

business data and may forward a model award instrument and other information pertinent to negotiation.

L. Cancellation of NRA. NASA reserves the right to make no awards under this NRA and to cancel this NRA. NASA assumes no liability for canceling the NRA or for anyone's failure to receive actual notice of cancellation.

(End of provision)

Additional Guidelines for the Preparation of Proposals in Response to this NRA

The information contained in Appendix C augments and supersedes Appendix B and is applicable only to NRA 97-OSS-12.

Notices of Intent

Notices of Intent are very strongly encouraged this year in order to expedite the review and selection process. They should include a descriptive title, the names and institutions of the Principal Investigator (PI) and Co-Investigators (Co-I's), a summary of the proposed research, and a proposal category (see Appendix, page D-2). These should be submitted by E-mail by the deadline date specified in the covering letter to this NRA.

Proposal Format and Content

All proposals must have a Cover Page, which is located on the World Wide Web (WWW) and which must be completed and submitted over the WWW. It is located at :

<http://www.Code_S_Proposals.hq.nasa.gov/atp97>
(<http://131.182.116.166/atp97>). An example of this Cover Page is given in Appendix D.

Once electronically submitted, the Cover Page must be downloaded and printed in order to obtain the necessary signatures. The Web site will provide several download format options. Do not edit the downloaded file; make changes to a Cover Page only by resubmitting it over the WWW. The only official Cover Page is that submitted over the WWW.

Proposers without access to WWW or who experience difficulties may contact Karen Davis (E-mail: karen.davis@hq.nasa.gov or Fax: 202-554-3042) for assistance in submitting Cover Page information. The signed Cover Page need not be returned by the proposal deadline, when bulk copies and Cover Pages are due, but it must be submitted to the address for proposals within 10 calendar days after the due date. Also note that receipt of the Cover Page of a proposal is not sufficient to meet the deadline for proposal submission. Paper copies of proposals must be submitted by the indicated due date.

When completing the Cover Page, please note that NASA recognizes only one PI for each proposal. Other investigators are designated Co-I's even if their proposal and science responsibilities are comparable to that of the PI.

All proposals must be endorsed by the proposer's sponsoring institution. If substantial collaborations with other institutions are involved, letters of

endorsement should be submitted by the responsible officials from those institutions. Each endorsement letter should indicate agreement with the nature of the collaboration detailed in the proposal, which should be identified by title and date of submission. All endorsement letters should refer to the Astrophysics Theory Program of the Research Program Management Division of the Office of Space Science.

Where a scientist is prevented from proposing as Principal Investigator because of institutional restrictions, a "Sponsoring Principal Investigator" may submit the proposal on behalf of the Science Principal Investigator. The Sponsoring PI is listed as the PI with his/her status as Sponsoring PI indicated at the beginning of the proposal. The scientist who is prevented from proposing as Principal Investigator is listed as a Co-I and referred to as the "Science PI" in the proposal. The Sponsoring PI has the final responsibility of project management and budget control as required by the granting institution even though the Science PI may have primary control of the scientific goals of the project. Publications may reflect the importance of the Science PI.

Note further that, for approved proposals, NASA plans to enter information contained in the Cover Page into electronically accessible data bases, and to make these data bases accessible to future proposers for this and other related Astrophysics programs. Therefore the Abstract contained on the Cover Page should be carefully and exactly entered into the space provided using only ascii characters, and should not contain any material that the proposer considers as proprietary.

Proposals to obtain funding from this program should provide sufficient detail to enable a reviewer to judge the value of the proposed research to the objectives of the Astrophysics Theory Program and to assess the probability that the investigators will be able to accomplish the stated objectives within the requested resources and proposed time frame.

The project description should be a full statement of the proposed research with the key elements clearly defined and related to each other. The theoretical plans, methods, and/or approaches for the investigation should be presented and related to previous work in the field. The anticipated results and their relationship to the scientific goals of the Astrophysics Theory Program should be addressed. The institutional research facilities available for the investigation should also be described briefly.

Each proposal should include, in the order listed, the following parts:

1. Cover Page provided by the Web tool at:
 <http://www.Code_S_Proposals.hq.nasa.gov/atp97>, or equivalently at
 <<http://131.182.116.166/atp97>>.
2. Table of Contents.
3. An abstract of the proposed science program.

4. A detailed description of the proposed science program, including objectives, work plan, schedule, and expected results. This description should provide sufficient detail to enable a reviewer to judge the scientific merits of the proposed research in relation to the objectives of the Astrophysics Theory Program.
5. Management plan.
6. An Education and Public Outreach plan (optional)
7. Completed Proposal Budget Form(s) (provided in this NRA).
8. Completed current and pending federal support section.
9. Biographical sketch(es).
10. Certification Forms (note: the Certification forms may be submitted either with the proposals or with the signed original Cover Sheet)

Note that the Proposal Budget Summary is not required for proposals originating outside the U.S., since such proposals would be accepted on a no-exchange-of-funds basis only.

Page Limit

Proposals are expected to be concisely written in order to minimize the burden on the reviewers and to facilitate the overall evaluation process. There is a page limit to items 4 and 5 of the proposal: their **total** length should not exceed 15 single-spaced, typewritten page sides (point size 10 or larger, with 1-inch margins) for individual projects, or 20 page sides for group projects, including figures and references. Institutional budget pages may be included with the Proposal Budget Summary forms, and are not limited. Double-sided printing is encouraged for the entire proposal. The enclosure of reprints or preprints is discouraged. To facilitate the recycling of proposals after review, proposals should be submitted on plain, white paper only bound in a manner that allows easy disassembly. This precludes the use of cardboard stock, plastic covers, colored paper, etc.

Guidelines for the Budget Section of Proposals

The budget section of the proposals should include a breakdown for each year of the proposed work, not to exceed 3 years. See Appendix A for the anticipated funding levels and timeframes.

The budget must at a minimum be presented in the Proposal Budget Summary enclosed in this NRA (Appendix D, page D-4) and must carefully comply with the instruction sheet included. The budget breakdown requested in this form will be used by the Government to evaluate costs as to reasonableness, allowability, and allocability. The total budget amount must also be entered in a Proposal Budget Summary sheet.

If collaborations with Co-I's who are at institutions different from that of the PI are involved, and if those Co-I's anticipate support, the budget total of each participating institution should be listed under category *2.a. Subcontracts* in the

Proposal Budget Summary of the PI. Details of the budgets of such participating institutions should be provided in separate Proposal Budget Summaries (which may be obtained by copying the enclosed form or downloading the Postscript file from the ftp site). A PI submitting multiple budgets for Co-I's must make sure that the total budget on the Proposal Budget Summary reflects the sum of all the institutions' budgets.

Current and Pending Federal Support

Following the budget section, the proposal must contain, for the PI and each Co-I for whom support is requested, a summary of current and pending Federal support of all projects in which he/she is substantially involved. The required information should be provided separately for categories A and B, and must include:

- Source of support and grant number
- Project title
- Total award, duration, and award amount by fiscal year
- Level of effort (percent)

A. Currently supported research project(s) that will be active during FY 1998 (October 1, 1997, through September 30, 1998); and

B. Research projects(s) for which support is pending selection.

Any other funding agencies to which the proposal has been or will be contemporaneously submitted should be listed at the beginning of the current and pending research support section.

Biographical Sketches

A brief biographical sketch, along with a list of the most important and relevant scientific publications covering the past 5 years, should be included. The biographical sketch and publications list should not exceed one page per PI or Co-I.

Education and Public Outreach

"Partners in Education: A Strategy for Integrating Education and Public Outreach Into NASA's Space Science Programs" (released in March 1995) describes the Office of Space Science's approach for making education at all levels and the enhancement of the public understanding of science integral parts of space science research activities. Education and public outreach are now expected to be a part of each flight program and research discipline. The follow-on implementation plan, "Implementing the Office of Space Science (OSS) Education/Public Outreach Strategy," produced by the Education/Public Outreach Task Force of the Space Science Advisory Committee (SSAC), was published October 15, 1996. It may also be obtained from Dr. Jeffrey D.

Rosendhal, Office of Space Science, Code S, NASA Headquarters, Washington, DC 20546-0001; E-mail: <jeffrey.rosendhal@hq.nasa.gov> or by opening "Publications" on the OSS homepage at <<http://www.hq.nasa.gov/office/oss/>>.

In accordance with the policies in the OSS education strategy and the recommendations in the implementation plan, proposers are strongly encouraged to include education public/outreach activities in their proposals. Up to ten percent of a total grant award may be used for such activities. Scientific excellence of proposal investigations will continue to be the primary selection criterion. However, the quality of a proposed education/outreach effort will be used as an additional factor in selecting among otherwise equal and scientifically excellent proposals. Educational components of those proposals being considered for selection on the basis of their scientific and technical merit will be evaluated by an education professional. Evaluation criteria for education components will include:

- The educational effectiveness and realism of program concern,
- Existence of effective partnerships with educational institutions and/or educators,
- Effective leveraging of existing resources and the prospects for the program to have a multiplier effect,
- Capability of proposers to carry out a proposed program.
- Consistency with national educational reform efforts, and
- Realism of budget.

Attention is also called to the program entitled Initiative to Develop Education through Astronomy (IDEA) that is administered on behalf of OSS by the Space Telescope Science Institute. This program provides small grants (typically \$6K, but may range up to \$20K) to enhance participation of space scientists in precollege or public outreach activities. A call for proposals for the IDEA program is issued annually. For more information, contact Dr. Anne Kinney, Project Scientist for Education, Space Telescope Science Institute, 3700 San Martin Drive, Baltimore, MD 21218.

Guidelines for Foreign Participation

NASA welcomes proposals from outside the U.S. However, investigators working outside the U.S. are not eligible for funding from NASA. Proposals from non-U.S. entities should not include a cost plan. Proposals from outside the U.S. and U.S. proposals that include non-U.S. participation must be endorsed by the respective government agency or funding/sponsoring institution in that country from which the non-U.S. participant is proposing. Such endorsement should indicate that the proposal merits careful consideration by NASA, and that if the proposal is selected, sufficient funds will be made available to undertake the activity as proposed.

In addition to sending 15 copies of the proposals to the designated address, one copy of the proposal, along with a Letter of Endorsement from the sponsoring non-U.S. agency, must be forwarded to:

Ms. Bettye Jones
(NRA 97-OSS-12)
International Science and Aeronautics Division
Code IS
NASA Headquarters
Washington, DC 20546-0001
U.S.A.

All proposals must be typewritten in English. All non-U.S. proposals will undergo the same evaluation and selection process as those originating in the U.S. All proposals must be received before the established closing date; those received after the closing date will be held for the next proposal cycle. Sponsoring non-U.S. agencies may, in exceptional situations, forward a proposal without endorsement to the above address if endorsement is not possible before the announced closing date. In such cases, however, NASA's International Science and Aeronautics Division should be advised when a decision on endorsement can be expected.

Successful and unsuccessful proposers will be contacted directly by the NASA Research Program Management Division. Copies of these letters will be sent to the sponsoring government agency. Should a non-U.S. proposal or a U.S. proposal with non-U.S. participation be selected, NASA's International Science and Aeronautics Division will arrange with the non-U.S. sponsoring agency for the proposed participation on a no-exchange-of-funds basis, in which NASA and the non-U.S. sponsoring agency will each bear the cost of discharging their respective responsibilities. Depending on the nature and extent of the proposed cooperation, these arrangements may entail:

1. a letter of notification by NASA; and
2. an exchange of letters between NASA and the sponsoring governmental agency, or
3. a formal Agency-to-Agency Memorandum of Understanding (MOU).

Evaluation and Selection Process

The following criteria, listed in descending order of importance, will be used in evaluating proposals for the Astrophysics Theory Program:

1. The overall scientific merit of the proposed research and its adherence to the stated objectives of this program.
2. The technical feasibility of accomplishing the stated scientific goals and the probability of success of the proposed research.

3. The competence and relevant experience of the principal investigator and any collaborators as an indication of their ability to carry the investigation to a successful conclusion, including timely publication of peer-reviewed journal articles.
4. The reputation and interest of the investigator's institution as measured by the willingness of the institution to provide necessary support to ensure that the investigation can be completed satisfactorily.
5. Cost and management factors will also be considered in all selections. Cost factors include any cost sharing or contributions by the investigator's institution to the proposed effort. Management aspects include the time and attention the investigator plans to devote personally to the investigation.

Other Conditions

NASA may select only a portion of a proposer's investigation, in which case the investigator will be given the opportunity to accept or decline such partial acceptance. Under this Program, salary requests may be made for research, but may not be made for teaching.

Forms for Use in Preparing Proposals in Response to this NRA

Enclosed in this appendix are forms that should be used in preparing proposals responding to this NRA (forms are also available by anonymous ftp from <ftp.hq.nasa.gov>):

1. Sample Cover Page (D-2)
2. Proposal Budget Summary form (note carefully and comply with the instructions on p. D-3).
3. Certification Forms: Drug-Free Workplace, Debarment and Suspension, and Lobbying (not required from U.S. Government institutions).

SAMPLE

Astrophysics Theory Program (ATP) NRA 97-OSS-12

PI Name
Institution
Mailing Address
Phone Number
Fax Number
E-Mail Address

PI Signature

Proposal Title

Proposal Type: Individual Proposal
 Group Proposal

Proposal Category: Cosmology
 Extragalactic
 Interstellar Medium/Star Formation
 Cosmic Ray/Particle Astrophysics
 Compact Objects
 Stellar
 Other

Co-Investigators (Full Name, Institution, Phone, Fax, E-Mail)

Authorizing Institutional Official's Endorsement
 Typed Name and Title
 Full Address
 Telephone
 Signature and Date

Budget (Year 1, Year 2, Year 3, Total)

Abstract (200 to 300 words)

INSTRUCTIONS FOR BUDGET PREPARATION

General Instructions for PROPOSAL BUDGET SUMMARY

1. Provide a separate Budget Summary sheet for each year of the proposal research.
2. Grantee estimated costs should be entered in Column A. Columns B and C are for NASA use only. Column C represents the approved grant budget.
3. Provide in attachments to the proposal the detailed computations of estimates in each category, along with any narrative explanation required to fully explain proposed costs.

Material to be included in budget attachment:

1. Direct Labor (salaries, wages and fringe benefits). Enclosures should list number and titles of personnel, amount of time devoted to the grant, and rates of pay.
2. Other Direct Costs.
 - a. Subcontracts - Enclosures should describe the work to be subcontracted, estimated amount, recipient (if known), and the reason for subcontracting this effort.
 - b. Consultants - Identify consultants to be used, why they are necessary, time to be spent on the project, and rates of pay.
 - c. Equipment - List separately and explain the need for items of equipment exceeding \$1,000. Describe the basis for the estimated cost.
 - d. Supplies - Provide general categories of needed supplies, the method of acquisition, estimated cost, and the basis for the estimate.
 - e. Travel - List the proposed trips individually, describe their purpose in relation to the grant, provide dates and destinations where known, and explain how the cost for each was derived.
 - f. Other - Enter the total of any other direct costs not covered by 2.a through 2.e. Enclose an itemized list explaining the need for each item and the basis for the estimate.
3. Indirect Costs. Identify indirect cost rate(s) and base(s) as approved by the cognizant Federal agency, including the effective period of the rate. If unapproved rates are used, explain why and include a computational basis for the indirect expense pool and corresponding allocation base for each rate.
4. Other Applicable Costs. Enter the total of any other applicable costs not covered by instructions 1 through 3. Enclose an itemized list explaining the need for each item and the basis for the estimate.
5. Subtotal -- Estimated Costs. Enter the sum of items 1, 2.a through 2.f, 3, and 4.
6. Less Proposed Cost Sharing (if any). Enter the amount proposed, if any. If cost sharing is based on specific cost items, identify each item and amount in enclosures.
7. Carryover Funds (if any). Enter the dollar amount of any funds that are expected to be available for carryover from the prior budget period.
8. Total Estimated Costs. Enter the total after subtracting items 6 and 7 from item 5.

PROPOSAL BUDGET SUMMARY

FROM: _____ to _____

TITLE OF INVESTIGATION:

PRINCIPAL INVESTIGATOR / INSTITUTION:

		<u> NASA USE ONLY </u>	
	A	B	C
1. Direct Labor (salaries, wages, and fringe benefits)	_____	_____	_____
2. Other Direct Costs:			
a. Subcontracts	_____	_____	_____
b. Consultants	_____	_____	_____
c. Equipment	_____	_____	_____
d. Supplies	_____	_____	_____
e. Travel	_____	_____	_____
f. Other	_____	_____	_____
3. Indirect Costs	_____	_____	_____
4. Other Applicable Costs	_____	_____	_____
5. Subtotal--Estimated Costs	_____	_____	_____
6. Less Proposed Cost Sharing	_____	_____	_____
7. Carryover Funds (if any)			
a. Anticipated amount	_____	_____	_____
b. Amount used to reduce budget	_____	_____	_____
8. Total Estimated Costs	_____	_____	XXXXXXXX
APPROVED BUDGET	XXXXXX	XXXXXX	_____

**CERTIFICATION REGARDING
DEBARMENT, SUSPENSION, AND OTHER RESPONSIBILITY MATTERS
PRIMARY COVERED TRANSACTIONS**

This certification is required by the regulations implementing Executive Order 12549, Debarment and Suspension, 34 CFR Part 85, Section 85.510, Participant's responsibilities. The regulations were published as Part VII of the May 26, 1988 Federal Register (pages 19160–19211). Copies of the regulations may be obtained by contacting the U. S. Department of Education, Grants and Contracts Service, 400 Maryland Avenue, S. W. (Room 3633 GSA Regional Office Building No. 3), Washington, D. C. 20202-4725, telephone (202) 732-2505.

- (1) The prospective primary participant certifies to the best of its knowledge and belief, that it and its principals:
- (a) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;
 - (b) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;
 - (c) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (1)(b) of this certification; and
 - (d) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.
- (2) Where the prospective primary participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

Institution

Principal Investigator

Name and Title of Authorized Representative

Signature

Date

**CERTIFICATION REGARDING DRUG-FREE WORKPLACE REQUIREMENTS
GRANTEES OTHER THAN INDIVIDUALS**

This certification is required by the regulations implementing the Drug-Free Workplace Act of 1988, 34 CFR Part 85, Subpart F. The regulations, published in the January 31, 1989 Federal Register, require certification by grantees, prior to award, that they will maintain a drug-free workplace. The certification set out below is a material representation of fact upon which reliance will be placed when the agency determines to award the grant. False certification or violation of the certification shall be grounds for suspension of payments, suspension or termination of grants, or government wide suspension or debarment (see 34 CFR Part 85, Sections 85.615 and 85.620).

The grantee certifies that it will provide a drug-free workplace by:

- (a) Publishing a statement notifying employees that the unlawful manufacture, distribution, dispensing, possession or use of a controlled substance is prohibited in the grantee's workplace and specifying the actions that will be taken against employees for violation of such prohibition;
- (b) Establishing a drug-free awareness program to inform employees about—
 - (1) The dangers of drug abuse in the workplace;
 - (2) The grantee's policy of maintaining a drug-free workplace;
 - (3) Any available drug counseling, rehabilitation, and employee assistance programs;
 - and
 - (4) The penalties that may be imposed upon employees for drug abuse violations occurring in the workplace;
- (c) Making it a requirement that each employee to be engaged in the performance of the grant be given a copy of the statement required by paragraph (a);
- (d) Notifying the employee in the statement required by paragraph (a) that, as a condition of employment under the grant, the employee will—
 - (1) Abide by the terms of the statement; and
 - (2) Notify the employer of any criminal drug statute conviction for a violation occurring in the workplace no later than five days after such conviction;
- (e) Notifying the agency within ten days after receiving notice under subparagraph (d)(2) from an employee or otherwise receiving actual notice of such conviction;
- (f) Taking one of the following actions, within 30 days of receiving notice under subparagraph (d)(2), with respect to any employee who is so convicted—
 - (1) Taking appropriate personnel action against such an employee, up to and including termination; or
 - (2) Requiring such employee to participate satisfactorily in a drug abuse assistance or rehabilitation program approved for such purposes by a Federal, State, or local health, law enforcement, or other appropriate agency;
- (g) Making a good faith effort to continue to maintain a drug-free workplace through implementation of paragraphs (a), (b), (c), (d), (e) and (f).

Institution

Principal Investigator

Name and Title of Authorized Representative

Signature

Date

CERTIFICATION REGARDING LOBBYING

As required by S1352 Title 31 of the U.S. Code for persons entering into a grant or cooperative agreement over \$100,000, the applicant certifies that:

(a) No Federal appropriated funds have been paid or will be paid by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, in connection with making of any Federal grant, the entering into of any cooperative, and the extension, continuation, renewal, amendment, or modification of any Federal grant or cooperative agreement;

(b) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting an officer or employee of any agency, Member of Congress, an or an employee of a Member of Congress in connection with this Federal grant or cooperative agreement, the undersigned shall complete Standard Form -LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

(c) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subgrants, contracts under grants and cooperative agreements, and subcontracts), and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by S1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less that \$10,000 and not more than \$100,000 for each such failure.

Organization Name

AO or NRA Number and Name

Printed Name and Title of Authorized Representative

Signature

Date

Printed Principal Investigator Name

Proposal Title